IN THE CLAIMS

REMARKS

Claim Rejections – 35 U.S.C. §103

The Examiner has rejected claims 1-32 under 35 U.S.C. §103 as being unpatentable over various combinations of Carl, Slomowitz, and Hasegawa.

It is Applicant's understanding that any combination of the cited references fails to teach Applicant's invention as claimed. Applicant teaches and claims a method of forming a dielectric on a substrate. According to Applicant's claimed method, the dielectric layer is exposed to "active atomic species" which are formed in a chamber different from the chamber in which the substrate being annealed is located. It is to be appreciated that Applicant claims to anneal the film with "active atomic species". Active atomic species are in a highly energized state so that they are highly reactive with a dielectric film to fill vacancies therein and to passivate films and substrates. As defined in the specification, active atomic species are electrically neutral highly reactive atoms. Reactive atomic species are not charged or ionized but are highly energized. Because the active atomic species are uncharged they are not electrically damaging to the substrate or electrical devices formed therein.

On the other hand, Carl, Hasegawa, and Slomowitz each teach to expose a film or substrate to a plasma or an ionized gas as opposed to an electrically neutral active atomic species as claimed by Applicant. Specifically, Carl teaches an ozone plasma anneal of a high dielectric constant TA_205 thin film (Column 1, lines 40-62; column 2, lines 46-54). Hasagawa teaches a plasma enhanced CVD

(Column 5, lines 5-10) and a "plasma" treatment (Column 6, lines 61-66). Slomowitz teaches an igniter and a microwave cavity for applying microwave energy to a gas to bring the gas to an "ionized" state where the plasma is sustained. (Abstract) The microwave sustained plasma is used for treating semiconductor wafers. (Column 2, lines 21-25) Thus, each of the cited references teaches to treat a film or a substrate with a "plasma" or an "ionized" gas as opposed to an electrically neutral active atomic species as claimed by Applicant.

Because non of the cited references teach to anneal with an electrically neutral active atomic species, no combination of the cited references can teach or render obvious Applicant's claimed invention. Applicant therefore respectfully request the removal of the 35 U.S.C. §103 rejections of claims 12-32 and seeks an early allowance of these claims.